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Natural Resources Conservation Service

Montana Basin Outlook Report June 1, 1999

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and
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How forecasts are made

Most of the annual streamflow in the Western United States originates as snowfall that has accumulated high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are combined with snowpack data to prepare runoff forecasts. Streamflow forecasts are coordinated by Natural Resources Conservation Service and National Weather Service hydrologists. This report presents a comprehensive picture of water supply conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data, and narratives describing current conditions.

Snowpack data are obtained by using a combination of manual and automated SNOTEL measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation and temperature are monitored on a daily basis and transmitted via meteor burst telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

Forecast uncertainty originates from two sources: (1) uncertainty of future hydrologic and climatic conditions, and (2) error in the forecasting procedure. To express the uncertainty in the most probable forecast, four additional forecasts are provided. The actual streamflow can be expected to exceed the most probable forecast 50% of the time. Similarly, the actual streamflow volume can be expected to exceed the 90% forecast volume 90% of the time. The same is true for the 70%, 30%, and 10% forecasts. Generally, the 90% and 70% forecasts reflect drier than normal hydrologic and climatic conditions; the 30% and 10% forecasts reflect wetter than normal conditions. As the forecast season progresses, a greater portion of the future hydrologic and climatic uncertainty will become known and the additional forecasts will move closer to the most probable forecast.

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United States Department of Agriculture
Natural Resources Conservation Service (formerly the Soil Conservation Service)
Bozeman, Montana

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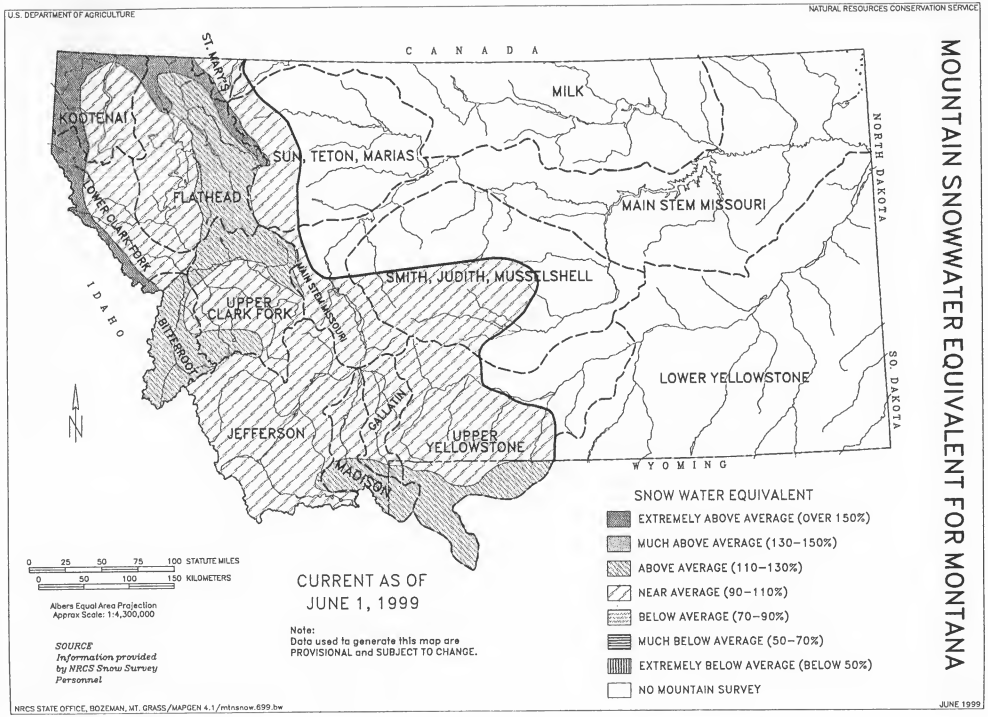
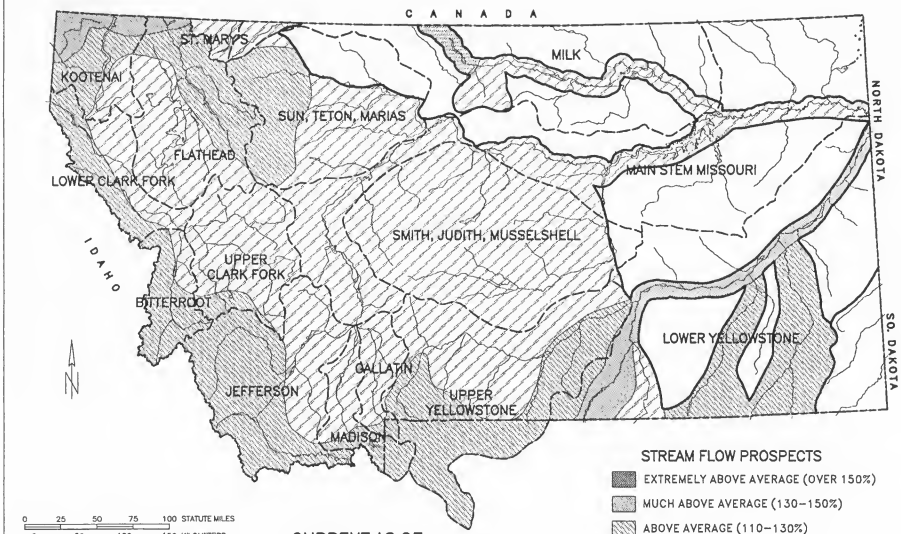

U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
MOUNTAIN SNOWWATER EQUIVALENT FOR MONTANA
C A N A D A
ST. MARY'S
MILK
KOOTENAI
SUN, TETON, MARIAS
FLATHEAD
LOWER CLARK FORK
MAIN STEM MISSOURI
NORTH DAKOTA
SMITH, JUDITH, MUSSELSHELL
I D A H O
UPPER CLARK FORK
MAIN STEM BROADWATER
BITTERROOT
LOWER YELLOWSTONE
SO. DAKOTA
GALLATIN
JEFFERSON
UPPER YELLOWSTONE
MADISON
W Y O M I N G
N
0 25 50 75 100 STATUTE MILES
0 50 100 150 KILOMETERS
Albers Equal Area Projection
Approx Scale: 1:4,300,000
SOURCE
Information provided by NRCS Snow Survey Personnel
CURRENT AS OF JUNE 1, 1999
Note:
Data used to generate this map are PROVISIONAL and SUBJECT TO CHANGE.
SNOW WATER EQUIVALENT
EXTREMELY ABOVE AVERAGE (OVER 150%)
MUCH ABOVE AVERAGE (130–150%)
ABOVE AVERAGE (110–130%)
NEAR AVERAGE (90–110%)
BELOW AVERAGE (70–90%)
MUCH BELOW AVERAGE (50–70%)
EXTREMELY BELOW AVERAGE (BELOW 50%)
NO MOUNTAIN SURVEY
NRCS STATE OFFICE, BOZEMAN, MT. GRASS/MAPGEN 4.1/mtnsnow.699.bw
JUNE 1999

U.S. DEPARTMENT OF AGRICULTURE

NATURAL RESOURCES CONSERVATION SERVICE

STREAM FLOW PROSPECTS FOR MONTANA

Spring and Summer Period



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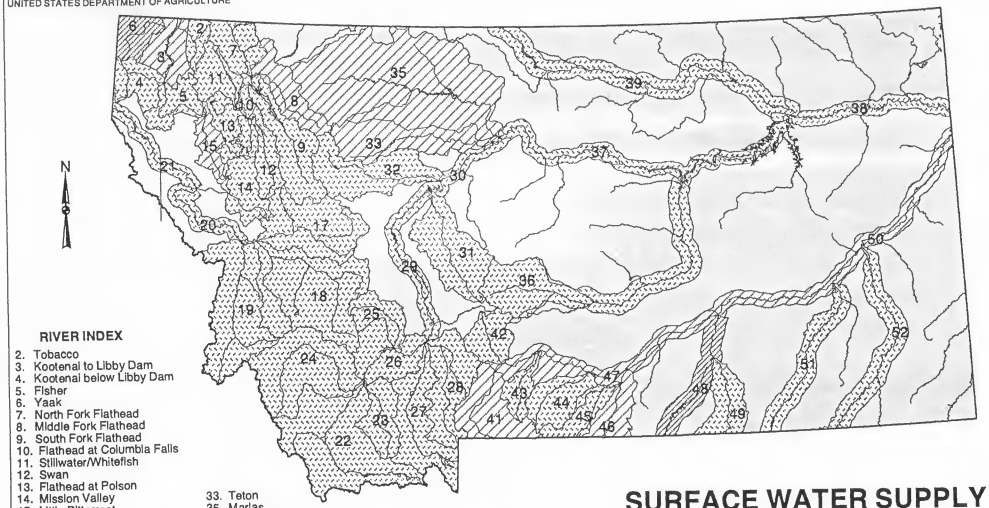
JUNE 1999

UNITED STATES DEPARTMENT OF AGRICULTURE

NATURAL RESOURCES CONSERVATION SERVICE



RIVER INDEX

2. Tobacco
3. Kootenai to Libby Dam
4. Kootenai below Libby Dam
5. Fisher
6. Yaak
7. North Fork Flathead
8. Middle Fork Flathead
9. South Fork Flathead
10. Flathead at Columbia Falls
11. Stillwater/Whitefish
12. Swan
13. Flathead at Polson
14. Mission Valley
15. Little Bitterroot
17. Blackfoot
18. Clark Fork above Missoula
19. Bitterroot
20. Clark Fork below Bitterroot
21. Clark Fork below Flathead
22. Beaverhead
23. Ruby
24. Big Hole
25. Boulder (Jefferson)
26. Jefferson
27. Madison
28. Gallatin
29. Missouri above Canyon Ferry
30. Missouri below Canyon Ferry
31. Smith
32. Sun
33. Teton
35. Marias
36. Musselshell
37. Missouri above Ft. Peck
38. Missouri below Ft. Peck
39. Milk
41. Yellowstone above Livingston
42. Shields
43. Boulder (Yellowstone)
44. Stillwater
45. Rock/Red Lodge
46. Clark's Fork
47. Yellowstone above Bighorn
48. Bighorn below Bighorn Lake
49. Little Bighorn
50. Yellowstone below Bighorn
51. Tongue
52. Powder

SURFACE WATER SUPPLY INDEX (SWSI) VALUES

SWSI VALUES

- Extremely Dry (-4.0 to -3.0)
- Moderately Dry (-2.9 to -2.0)
- Slightly Dry (-1.9 to -1.0)
- Near Average (-.9 to .9)
- Slightly Wet (1.0 to 1.9)
- Moderately Wet (2.0 to 2.9)
- Extremely Wet (3.0 to 4.0)
- SWSI Not Applicable

CURRENT AS OF JUNE 1, 1999

NOTE: Data used to generate this map are PROVISIONAL and SUBJECT TO CHANGE.

ALBERS EQUAL AREA PROJECTION

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JUNE 1999

MONTANA STATE OFFICE, BOZEMAN, MT ArcVIEW 3.0/swsi699.apr - CW

SUMMARY OF MONTANA SNOTEL AND SNOW COURSE DATA

JUNE 1999

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
ALBRO LAKE PILLOW	8300	6/01/99	---	17.7	5.5	14.7
BADGER PASS PILLOW	6900	6/01/99	---	36.8	.0	20.9
BANFIELD MTN PILLOW	5600	6/01/99	---	9.9	.0	2.9
BARKER LAKES PILLOW	8250	6/01/99	---	13.0	5.4	10.0
BASIN CREEK PILLOW	7180	6/01/99	---	5.5	.0	4.7
BEAGLE SPGS PILLOW	8850	6/01/99	---	3.7	.0	.9
BEAVER CREEK PILLOW	7850	6/01/99	---	10.4	9.5	9.7
BIG CREEK	6750	5/27/99	81	40.6	--	42.1
BISSON CREEK PILLOW	4920	6/01/99	---	.0	.0	.0
BLACK BEAR PILLOW	7950	6/01/99	---	49.9	30.4	27.5
BLACK PINE PILLOW	7100	6/01/99	---	.0	.0	2.4
BLOODY DICK PILLOW	7550	6/01/99	---	.0	.0	1.7
BOULDER MTN PILLOW	7950	6/01/99	---	10.8	.2	10.5
BOX CANYON PILLOW	6700	6/01/99	---	.0	.0	.0
BOXELDER CREEK	5100	6/01/99	0	.0	.0	.0
BRACKETT CR PILLOW	7320	6/01/99	---	3.2	.8	12.6
CALVERT CR PILLOW	6430	6/01/99	---	.0	.0	.0
CARROT BASIN PILLOW	9000	6/01/99	---	28.8	22.2	24.7
CHICKEN CREEK	4060	5/28/99	0	.0	.0	.0
CLOVER MDW PILLOW	8800	6/01/99	---	14.6	10.6	10.6
COLE CREEK PILLOW	7850	6/01/99	---	10.4	.0	12.9
COMBINATION PILLOW	5600	6/01/99	---	.0	.0	.0
COPPER BOTTOM PILLOW	5200	6/01/99	---	.0	.0	.0
COPPER CAMP PILLOW	6950	6/01/99	---	19.7	.0	12.7
CRYSTAL LAKE PILLOW	6050	6/01/99	---	.6	.0	1.0
DAISY PEAK PILLOW	7600	6/01/99	---	.0	.0	2.5
DALY CREEK PILLOW	5780	6/01/99	---	.0	.0	.0
DARKHORSE LK. PILLOW	8700	6/01/99	---	30.0	26.6	28.5
DEADMAN CR PILLOW	6450	6/01/99	---	.0	.0	.0
DISCOVERY BASIN	7050	5/28/99	3	1.6	.0	4.2
DIVIDE PILLOW	7800	6/01/99	---	3.7	4.6	1.7
DUPUYER CREEK PILLOW	5750	6/01/99	---	.2	.0	.0
EMERY CREEK PILLOW	4350	6/01/99	---	.0	.0	.0
FISHER CREEK PILLOW	9100	6/01/99	---	37.4	21.3	31.7
FLATTOP MTN PILLOW	6300	6/01/99	---	52.7	21.1	34.4
FROHNER MDWS PILLOW	6480	6/01/99	---	.0	.0	1.2
GARVER CREEK PILLOW	4250	6/01/99	---	.0	.0	.0
GRAVE CRK PILLOW	4300	6/01/99	---	.0	.0	.0
HAND CREEK PILLOW	5030	6/01/99	---	.0	.0	.0
HAWKINS LAKE PILLOW	6450	6/01/99	---	37.3	.0	19.5
HELL ROARING DIVIDE	5770	5/28/99	39	19.6	1.4	11.2
HERRIG JUNCTION	4850	5/28/99	31	16.0	.0	2.4
HOODOO BASIN PILLOW	6050	6/01/99	---	49.3	17.3	29.2

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
KRAFT CREEK PILLOW	4750	6/01/99	---	.0	.0	.0
LAKEVIEW RDG. PILLOW	7400	6/01/99	---	4.3	.0	.0
LEMHI RIDGE PILLOW	8100	6/01/99	---	.2	1.6	2.8
LICK CREEK PILLOW	6860	6/01/99	---	.0	.0	.6
LONE MOUNTAIN PILLOW	8880	6/01/99	---	14.5	9.9	13.0
LOWER TWIN PILLOW	7900	6/01/99	---	16.0	10.3	13.5
LUBRECHT PILLOW	4680	6/01/99	---	.0	.0	.0
LUBRECHT FOREST NO 3	5450	5/28/99	0	.0	--	--
LUBRECHT FOREST NO 4	4650	5/28/99	0	.0	--	--
LUBRECHT FOREST NO 6	4040	5/28/99	0	.0	--	--
LUBRECHT HYDROPLOT	4200	5/28/99	0	.0	--	--
MADISON PLT PILLOW	7750	6/01/99	---	23.2	7.7	7.5
MANY GLACIER PILLOW	4900	6/01/99	---	.0	.0	.0
MAYNARD CREEK	6210	6/01/99	0	.0	.0	3.2
MONUMENT PK PILLOW	8850	6/01/99	---	21.9	10.3	16.2
MOSS PEAK PILLOW	6780	6/01/99	---	33.6	16.0	30.1
MT LOCKHART PILLOW	6400	6/01/99	---	17.7	.0	10.5
MULE CREEK PILLOW	8300	6/01/99	---	14.3	11.6	9.0
NEVADA CREEK PILLOW	6480	6/01/99	---	7.9	.0	3.8
NEVADA RIDGE PILLOW	7020	6/01/99	---	6.6	.0	4.0
NEZ PERCE CMP PILLOW	5650	6/01/99	---	.0	.0	.2
NOISY BASIN PILLOW	6040	6/01/99	---	34.8	20.1	30.2
N.F. ELK CR PILLOW	6250	6/01/99	---	.0	.0	.9
NF JOCKO PILLOW	6330	6/01/99	---	42.0	8.4	27.3
N.E. ENTRANCE PILLOW	7350	6/01/99	---	.0	.0	.2
OPHIR PARK	7150	5/30/99	10	3.4	--	7.6
PETERSON MEADOWS	7200	5/28/99	10	4.0	.6	4.2
PETERSON MDW PILLOW	7200	6/01/99	---	5.2	1.0	2.7
PICKFOOT CRK PILLOW	6650	6/01/99	---	.0	.0	.0
PIKE CREEK PILLOW	5930	6/01/99	---	13.8	.0	7.9
PLACER BASIN PILLOW	8830	6/01/99	---	13.4	1.0	16.2
PORCUPINE PILLOW	6500	6/01/99	---	.0	.0	.0
RED MOUNTAIN	6000	5/26/99	25	12.8	.0	4.2
REVAIS CREEK	4800	5/27/99	0	.0	.0	.0
ROCKER PEAK PILLOW	8000	6/01/99	---	12.4	7.8	13.2
ROCKY BOY PILLOW	4700	6/01/99	---	.0	.0	.0
ROCKY BOY	4700	6/01/99	0	.0	.0	.3
SADDLE MTN PILLOW	7900	6/01/99	---	20.7	13.6	17.5
SHORT CREEK PILLOW	7000	6/01/99	---	.4	.0	.0
SHOWER FALLS PILLOW	8100	6/01/99	---	18.4	9.4	23.3
SKALKAHO PILLOW	7260	6/01/99	---	18.8	9.7	15.8
S.F. SHIELDS PILLOW	8100	6/01/99	---	12.2	1.1	13.3
SPUR PARK PILLOW	8100	6/01/99	---	19.0	6.2	14.8
SLEEPING WOMAN PILL	6150	6/01/99	---	5.0	.0	5.0
STAHL PEAK PILLOW	6030	6/01/99	---	40.0	22.2	27.3
STRYKER BASIN	6180	5/28/99	50	31.0	6.6	20.6
STUART MOUNTAIN PILL	7400	6/01/99	---	25.8	11.7	19.8
SUCKER CREEK	3960	6/01/99	0	.0	.0	.2
TAYLOR ROAD	4080	6/01/99	0	.0	.0	.4

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
TEPEE CREEK PILLOW	8000	6/01/99	---	13.2	9.9	5.3
TIZER BASIN PILLOW	6840	6/01/99	---	.1	.0	2.0
TWELVEMILE PILLOW	5600	6/01/99	---	.0	.0	.6
TWENTY-ONE MILE	7150	6/02/99	5	1.7	--	--
TWIN LAKES PILLOW	6400	6/01/99	---	36.0	6.5	25.8
WALDRON PILLOW	5600	6/01/99	---	.0	.0	.0
WARM SPRINGS PILLOW	7800	6/01/99	---	19.2	14.3	19.6
WEST YELL'ST PILLOW	6700	6/01/99	---	.0	.0	.0
WHISKEY CREEK PILLOW	6800	6/01/99	---	6.0	.2	1.2
WHITE MILL PILLOW	8700	6/01/99	---	25.1	14.7	19.4
WOOD CREEK PILLOW	5960	6/01/99	---	1.0	.0	.1

Montana Water Supply Outlook Report as of June 1, 1999

May got off to a cold and stormy start and the beginning of snow melt was delayed. By the end of the month temperatures were well above average and mountain snowpack began melting at well above average rates. By the first of June temperatures cooled off again and most areas received rain with amounts quite variable across the state.

Snowpack

As of June 1, mountain snow water contents were ranging from below to extremely above average and more than two and a half times above last year at this time. The snow melt period was delayed but caught up quickly by the end of May. Snow melt peak flows generally ranged from May 26 to May 29 west of the divide and east of the divide, except the Madison, Gallatin, and Yellowstone Rivers, ranged from May 26 to June 1. The Madison and Gallatin Rivers should peak by June 14 and the Yellowstone by June 18 or 19. Snow water content across Montana was 139 percent of average and 264 percent of last year. West of the Continental Divide, snowpack was 152 percent of average and 365 percent of last year and East of the continental Divide, snowpack was 141 percent of average and 249 percent of last year.

RIVER BASIN	% OF AVERAGE	% OF LAST YEAR
COLUMBIA	152	365
KOOTENAI	186	450
FLATHEAD	148	327
UPPER CLARK FORK	126	305
BITTERROOT	159	319
LOWER CLARK FORK	191	422
MISSOURI	137	214
MISSOURI HEADWATERS	134	167
JEFFERSON	135	165
MADISON	152	167
GALLATIN	86	145
MISSOURI MAINSTEM	134	796
HEADWATERS MAINSTEM	109	473
SMITH-JUDITH-MUSSELSHELL	106	475
SUN-TETON-MARIAS	176	--
MAINSTEM ABOVE FT. PECK RES	137	894
ST. MARY	153	250
YELLOWSTONE	137	285
UPPER YELLOWSTONE	111	233
LOWER YELLOWSTONE (WYOMING)	176	369
WIND	191	332
SHOSHONE	153	283
BIGHORN	150	322
TONGUE	227	--
POWDER	151	--

Precipitation

May mountain and valley precipitation across the state was 85 percent of average and 87 percent of last year, while the water year precipitation was 105 percent of average and 122 percent of last year.

West of the Continental Divide, May mountain and valley precipitation was 75 percent of average and 53 percent of last year and the water year precipitation was 105 percent of average and 120 percent of last year. East of the Divide, May mountain and valley precipitation was 94 percent of average and 126 percent of last year and the water year precipitation was 105 percent of average and 122 percent of last year.

RIVER BASIN	MAY % OF AVERAGE	WATER YEAR % OF AVERAGE
COLUMBIA	75	105
KOOTENAI	78	115
FLATHEAD	76	102
UPPER CLARK FORK	78	103
BITTERROOT	82	110
LOWER CLARK FORK	54	110
MISSOURI	95	103
JEFFERSON	113	106
MADISON	129	111
GALLATIN	88	94
MISSOURI MAINSTEM	87	94
SMITH-JUDITH-MUSSELSHELL	80	98
SUN-TETON-MARIAS	59	98
MILK	103	121
ST. MARY	64	105
YELLOWSTONE	91	114
UPPER YELLOWSTONE	74	103
LOWER YELLOWSTONE (WYOMING)	108	128
WIND	110	135
SHOSHONE	97	126
BIGHORN	127	126
TONGUE	108	108
POWDER	106	133

Reservoirs

Major reservoir storages statewide were 95 percent of average and 77 percent of last year.

Reservoir storage west of the Continental Divide was 94 percent of average and 70 percent of last year. East of the Continental Divide, reservoir storages were 99 percent of average and 111 percent of last year.

RIVER BASIN	% OF AVERAGE	% OF LAST YEAR
COLUMBIA	94	70
KOOTENAI	93	60
FLATHEAD	92	78
UPPER CLARK FORK	114	103
BITTERROOT	100	83
LOWER CLARK FORK	118	100
MISSOURI	97	89
JEFFERSON	107	97
MADISON	96	86
GALLATIN	139	95
MISSOURI MAINSTEM	92	86
SMITH-JUDITH-MUSSELSHELL	111	98
SUN-TETON-MARIAS	102	89
MILK	92	135
ST. MARY	53	39
YELLOWSTONE	108	110
UPPER YELLOWSTONE	124	121
LOWER YELLOWSTONE	108	110

Streamflow

Statewide, streamflows are forecast to range between 96 and 124 percent of average. West of the Continental Divide, streamflows are forecast to range between 103 and 121 percent of average and east of the Continental Divide, streamflows are forecast to range between 90 and 127 percent of average.

Below are River Basin streamflow forecast summaries for the period June 1 through July 31. THESE FORECASTS ASSUME NEAR NORMAL SPRING CONDITIONS AND DO NOT ACCOUNT FOR WELL BELOW AVERAGE (70% or less) OR WELL ABOVE AVERAGE (130% or more) SNOWMELT OR SPRING RAIN. Specific forecast probabilities are available in each individual River Basin Report.

RIVER BASIN	JUNE-JULY THIS YEAR % OF AVERAGE	JUNE-JULY LAST YEAR % OF AVERAGE
COLUMBIA	104 to 122	48 to 67
KOOTENAI	106 to 130	50 to 68
FLATHEAD	101 to 117	54 to 65
UPPER CLARK FORK	101 to 119	42 to 68
BITTERROOT	109 to 125	51 to 70
LOWER CLARK FORK	103 to 119	43 to 62
MISSOURI	95 to 118	49 to 76
JEFFERSON	97 to 119	60 to 91
MADISON	109 to 120	70 to 80
GALLATIN	84 to 98	63 to 79
MISSOURI MAINSTEM	82 to 112	45 to 80
SMITH-JUDITH-MUSSELSHELL	89 to 117	22 to 60
SUN-TETON-MARIAS	111 to 140	32 to 69
MILK	70 to 117	9 to 52
ST. MARY	102 to 114	53 to 63
YELLOWSTONE	99 to 128	59 to 78
UPPER YELLOWSTONE	104 to 121	65 to 81
LOWER YELLOWSTONE	94 to 134	53 to 76

NOTE: The JUNE-JULY LAST YEAR % OF AVERAGE column above is last years forecasts on June 1, NOT of what actually occurred.

SNOWMELT PEAK STREAMFLOW FORECASTS

WATERSHED	SNOWMELT PEAK FLOW DATES
COLUMBIA RIVER	
Fisher River	Peaked on May 26
Yaak River	Peaked on May 26
North Fork Flathead River near Columbia Falls	Peaked on May 27
Middle Fork Flathead River near West Glacier	Peaked on May 26
Hungry Horse Reservoir inflow	Peaked on May 26
Lower Willow and Nevada CK. Res. inflow	Peaked on May 25
Swan River	Peaked on May 29
Blackfoot River near Bonner	Peaked on May 27
Clark Fork above Missoula	Peaked on May 27
Clark Fork below Missoula	Peaked on May 27
Bitterroot River near Darby	Peaked on May 26/29
Middle Fork Rock Creek	June 4 to June 11
MISSOURI RIVER	
Clark Canyon Res. inflow	Peaked on June 1
Ruby Res. inflow	Peaked on May 30
Big Hole near Melrose	Peaked on May 30
Hebgen Res. inflow	June 6 to June 14
Gallatin River	June 7 to June 14
Missouri at Toston	Peaked on May 31
Sheep Creek near White Sulphur Springs	Peaked on May 31
Smith River near Eagle Creek	Peaked on May 31
Gibson Reservoir inflow	Peaked on May 26
Swift Reservoir inflow	June 4 to June 10

SNOWMELT PEAK STREAMFLOW FORECASTS

WATERSHED	SNOWMELT PEAK FLOW DATES
YELLOWSTONE RIVER	
All forecast stations above Billings.....	June 10 to June 18
Yellowstone River at Billings	June 11 to June 19

PEAK STREAMFLOW FORECASTS FOR UNREGULATED STREAMS ARE AS FOLLOWS:

	PEAK RANGE IN DAILY CFS	PEAK RANGE AS PERCENT OF AVERAGE	AVERAGE DAILY PEAK IN CFS
COLUMBIA RIVER			
Fisher near Libby.....	Peaked at 2,470	100	2,466
Yaak near Troy.....	Peaked at 7,930	132	6,021
Blackfoot near Bonner...	Peaked at 8,800	92	9,588
Clark Fork ab Missoula .	Peaked at 13,600	94 to 136	16,738
Bitterroot near Darby ..	Peaked at 6,230	100	6,229
Clark Fork blw Missoula	30,000 to 42,000	94 to 131	31,992
Clark Fork at St. Regis	Peaked at 39,000	98	39,984
North Fork Flathead near Columbia Falls	Peaked at 19,100	90	21,189
Middle Fork Flathead near West Glacier	Peaked at 19,300	86	22,463
Hungry Horse Res Inflow	23,600 to 29,100	83 to 102	28,600
Swan at Big Fork.....	Peaked at 4,010	77	5,228
Nevada Creek near Finn..	150 to 340	45 to 102	334
Middle Fork Rock Creek near Philipsburg.....	740 to 900	87 to 106	853
MISSOURI RIVER			
Big Hole near Melrose ..	Peaked at 7,130	89	8,015
Inflow Clark Canyon Dam	Peaked at 1,314	-- to --	-----
Inflow Ruby Reservoir ..	Peaked at 1,000	96	1,037
Inflow Hebgen Reservoir	3,900 to 4,850	113 to 141	3,442
Gallatin near Gateway ..	4,700 to 5,900	87 to 109	5,389
Gallatin near Logan	4,100 to 5,900	73 to 106	5,581
Missouri at Toston	Peaked at 19,400	102	19,042
Marias near Shelby	Peaked at 3,420	-- to --	11,516
Inflow Gibson Reservoir	Peaked at 5,113	-- to --	-----
Inflow Swift Reservoir .	790 to 1,080	-- to --	-----
Sheep Creek near White Sulphur Springs.....	160 to 235	75 to 111	212
S. Fk. Musselshell above Martinsdale	490 to 820	40 to 67	1,229
YELLOWSTONE RIVER			
Yellowstone at Corwin Springs	18,500 to 24,500	105 to 140	17,532
Yellowstone at Livingston	21,000 to 27,500	102 to 133	20,732
Boulder near Big Timber	4,300 to 6,300	82 to 121	5,226
Stillwater nr Absarokee	4,800 to 7,500	73 to 114	6,601
Clarks Fork near Belfry	6,500 to 9,200	84 to 119	7,706
Yellowstone at Billings	36,000 to 50,500	84 to 118	42,716

NOTE: The low number in the flow range represents the maximum daily flow that would be expected to occur with little rainfall during the peak snowmelt period. The high number in the flow range could be expected with moderate amounts of rain about the same time as maximum snowmelt runoff is occurring. REPORTED PEAK FLOWS ARE PROVISIONAL DATA AND SUBJECT TO CHANGE.

Surface Water Supply Index

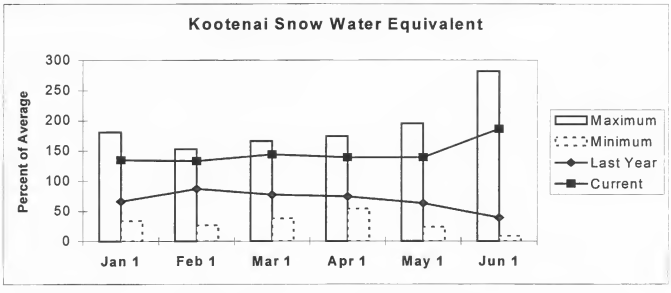
The Surface Water Supply Index (SWSI) is an indicator of surface water supply conditions for the spring and summer months. Water users that rely on mountain precipitation can use the index to evaluate seasonal surface water supplies. The SWSI accounts for mountain snowpack, mountain precipitation, streamflow, reservoir storage, and soil moisture.

SWSI RATING	SURFACE WATER CONDITION
+3.0 to +4.0	Extremely Wet
+2.0 to +3.0	Moderately Wet
+1.0 to +2.0	Slightly Wet
-1.0 to +1.0	Near Average
-1.0 to -2.0	Slightly Dry
-2.0 to -3.0	Moderately Dry
-3.0 to -4.0	Extremely Dry

SWSI	Basin
+0.6	Kootenai River at Ft. Steele (Kootenai in Canada)
+0.6	Tobacco River
+1.4	Kootenai Ft. Steele to Libby Dam
+0.3	Kootenai River below Libby Dam
-0.3	Fisher River
+2.5	Yaak River
+0.8	North Fork Flathead River
+1.0	Middle Fork Flathead River
-0.2	South Fork Flathead River
+0.5	Flathead River at Columbia Falls
+0.4	Stillwater/Whitefish Rivers
-0.1	Swan River
+0.2	Flathead River at Polson
-0.5	Mission Valley
+1.2	Little Bitterroot River
+0.6	Clark Fork River above Rock Creek
+0.6	Blackfoot River
+0.6	Clark Fork River above Missoula
+0.9	Bitterroot River
+0.7	Clark Fork River below Bitterroot River
+0.4	Clark Fork River below Flathead River
+0.6	Beaverhead River
-0.8	Ruby River
+0.9	Big Hole River
-0.1	Boulder River (Jefferson)
+0.6	Jefferson River
+0.3	Madison River
-0.7	Gallatin River
+0.2	Missouri River above Canyon Ferry
-0.4	Missouri River below Canyon Ferry
+0.7	Smith River
+0.9	Sun River
+1.2	Teton River
+1.3	Birch/Dupuyer Creeks
+1.2	Marias River
+0.7	Musselshell River
-0.2	Missouri River above Ft. Peck
0.0	Missouri River below Ft. Peck
-0.4	Milk River
+1.8	Yellowstone River above Livingston
-0.3	Shields River
+0.4	Boulder River (Yellowstone)
-0.1	Stillwater River
+0.7	Rock/Red Lodge Creeks
+1.4	Clarks Fork River
+1.3	Yellowstone River above Bighorn River
+2.4	Bighorn River below Bighorn Lake
-0.5	Little Bighorn River
+1.8	Yellowstone River below Bighorn River
+0.4	Tongue River
+0.7	Powder River

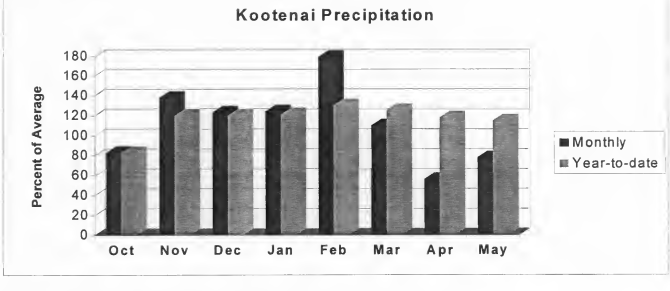
Kootenai River Basin in Montana

Snowpack conditions in the Kootenai River Basin were extremely above average for this time of year and sixth highest of record. Snow water content was 186 percent of average and 450 percent of last year.



January maximum swe was established in 1997 and minimum was in 1977; February maximum swe was in 1997 and minimum swe was in 1977; March maximum swe was in 1972 and minimum swe was in 1977; April maximum swe was in 1974 and minimum swe was in 1977; May maximum swe was in 1974 and minimum swe was in 1977; and June maximum swe was in 1974 and minimum swe was in 1992. Average is for the period 1961 through 1990.

Mountain precipitation during May was 81 percent of average and 49 percent of last year. Valley precipitation during May was 37 percent of average and 10 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 115 percent of average and 131 percent of last year.



Lake Koocanusa storage was 93 percent of average and 60 percent of last year.

Surface Water Supply Index (SWSI) was +0.6 in the Kootenai at Ft. Steele (Kootenai in Canada); +0.6 in the Tobacco River; +1.4 in the Kootenai Ft. Steele to Libby Dam; +0.3 in the Kootenai River below Libby Dam; -0.3 in the Fisher River; and +2.5 in the Yaak River.

KOOTENAI RIVER BASIN in Montana
Streamflow Forecasts - June 1, 1999

Forecast Point	Forecast Period	<<====== Drier ====== Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	Future Conditions 50% (Most Probable) (1000AF)	(% AVG.)	====== Wetter ======>> 30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
TOBACCO RIVER nr Eureka	JUN-JUL	50	63	72	116	81	94	62
	JUN-SEP	59	74	85	112	96	111	76
LIBBY Reservoir Inflow (1,2)	JUN-JUL	3329	3938	4215	116	4492	5101	3633
	JUN-SEP	4223	4946	5275	114	5604	6327	4626
FISHER RIVER nr Libby	JUN-JUL	39	54	65	93	76	91	70
	JUN-SEP	51	68	80	93	92	109	86
YAAK RIVER nr Troy	JUN-JUL	173	204	225	149	246	277	151
	JUN-SEP	199	232	255	147	278	311	174
KOOTENAI at Leonia (1,2)	JUN-JUL	3606	4351	4690	117	5029	5774	4010
	JUN-SEP	4589	5460	5855	115	6250	7121	5091

KOOTENAI RIVER BASIN in Montana
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
LAKE KOOCANUSA	5748.0	2953.0	4906.0	3186.0

KOOTENAI RIVER BASIN in Montana
Watershed Snowpack Analysis - June 1, 1999

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
KOOTENAY in CANADA	7	778	168
KOOTENAI MAINTSTEM	3	618	194
TOBACCO	2	180	147
FISHER	1	0	0
YAAK	3	0	211
KOOTENAI in MONTANA	8	457	180
KOOTENAI ab BONNERS FERRY	15	574	174

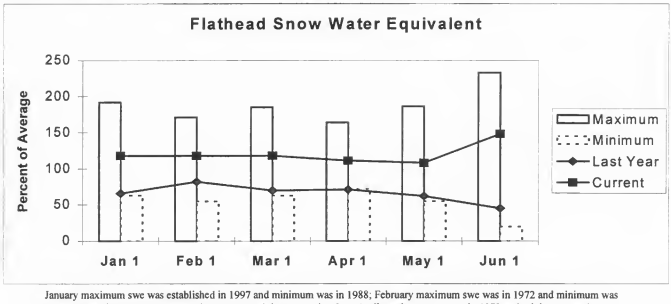
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

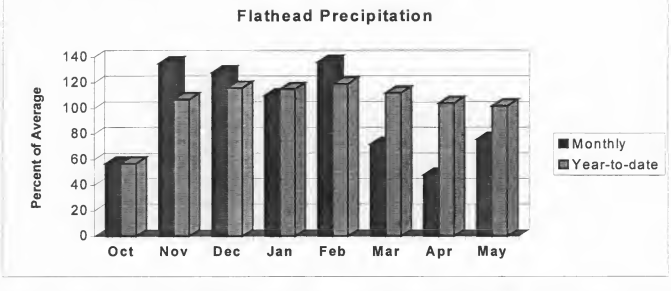
Flathead River Basin

Snowpack conditions in the Flathead River Basin were well above average and eighth highest of record for the period 1975 to 1998. Snow water content was 148 percent of average and 327 percent of last year.



January maximum swe was established in 1997 and minimum was in 1988; February maximum swe was in 1972 and minimum was in 1977; March maximum swe was in 1972 and minimum was in 1977; April maximum swe was in 1972 and minimum was in 1992; May maximum swe was in 1972 and minimum was in 1992; and June maximum swe was in 1974 and minimum was in 1992. Average is for the period 1961 through 1990.

Mountain precipitation during May was 78 percent of average and 55 percent of last year. Valley precipitation during May was 1 percent of average and 28 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 102 percent of average and 115 percent of last year.



Combined Camas reservoir storage was 135 percent of average and 105 percent of last year; combined Mission Valley reservoir storage was 39 percent of average and 31 percent of last year; Hungry Horse storage was 93 percent of average and 77 percent of last year; and Flathead Lake storage was 93 percent of average and 82 percent of last year.

Surface Water Supply Index (SWSI) was +0.8 in the North Fork Flathead River; +1.0 in the Middle Fork Flathead River; -0.2 in the South Fork Flathead River; +0.5 in the Flathead River at Columbia Falls; +0.4 in the Stillwater/Whitefish Rivers; -0.1 in the Swan River; +0.2 in the Flathead River at Polson; -0.5 in the Mission Valley; and +1.2 in the Little Bitterroot River.

FLATHEAD RIVER BASIN
Streamflow Forecasts - June 1, 1999

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ====== Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
NF FLATHEAD nr Columbia Falls	JUN-JUL	856	942	1000	115	1058	1144	872
	JUN-SEP	1057	1142	1200	115	1258	1343	1046
MF FLATHEAD nr West Glacier	JUN-JUL	862	953	1015	116	1077	1168	877
	JUN-SEP	1037	1128	1190	116	1252	1343	1027
HUNGRY HORSE Reservoir Inflow (1,2)	JUN-JUL	885	1060	1140	112	1220	1395	1019
	JUN-SEP	1024	1200	1280	111	1360	1536	1153
FLATHEAD at Columbia Falls (1,2)	JUN-JUL	2548	3031	3250	114	3469	3952	2840
	JUN-SEP	3057	3561	3790	114	4019	4523	3317
STILLWATER nr Whitefish	JUN-JUL	60	73	82	100	91	104	82
	JUN-SEP	74	89	100	99	111	126	101
WHITEFISH nr Kalispell	JUN-JUL	50	55	59	102	63	68	58
	JUN-SEP	62	68	72	101	76	82	71
SWAN RIVER nr Bigfork	JUN-JUL	221	280	320	100	360	419	321
	JUN-SEP	286	354	400	99	446	514	404
FLATHEAD Lake Inflow (1,2)	JUN-JUL	3244	3571	3720	112	3869	4196	3315
	JUN-SEP	3708	4129	4320	112	4511	4932	3850

FLATHEAD RIVER BASIN
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
CAMAS (4)	45.2	42.1	40.2	31.1
MISSION VALLEY (8)	100.0	26.6	86.9	68.9
HUNGRY HORSE	3451.0	2467.0	3221.0	2659.0
FLATHEAD LAKE	1791.0	1380.0	1678.0	1480.0

FLATHEAD RIVER BASIN
Watershed Snowpack Analysis - June 1, 1999

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
NF FLATHEAD in CANADA	1	0	348
NF FLATHEAD in MONTANA	6	287	170
MIDDLE FORK FLATHEAD	4	490	163
SOUTH FORK FLATHEAD	2	173	115
STILLWATER-WHITEFISH	5	832	195
SWAN	4	248	126
MISSION VALLEY	2	210	112
LITTLE BITTERROOT-ASHLEY	0	0	0
JOCKO	4	362	140
FLATHEAD in MONTANA	20	327	148
FLATHEAD RIVER BASIN	21	345	153

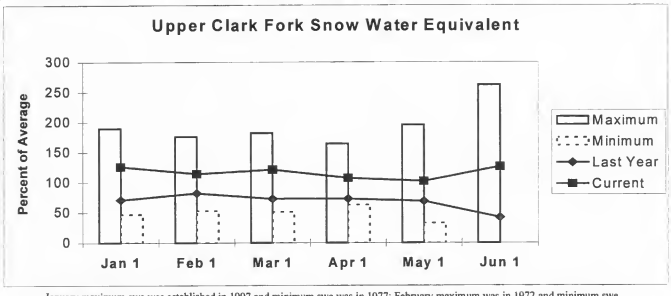
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

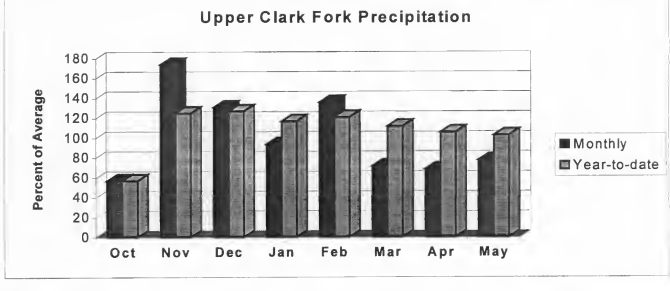
Upper Clark Fork River Basin

Snowpack conditions in the Upper Clark Fork River Basin were above average and sixth highest of record for the period 1975 to 1998. Snow water content was 126 percent of average and 305 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1977; February maximum was in 1972 and minimum swe was in 1977; March maximum swe was in 1972 and minimum swe was in 1977; April maximum swe was in 1972 and minimum was in 1994; May maximum swe was in 1972 and minimum swe was in 1977; and June maximum swe was in 1975 and minimum swe was in 1987. Average is for the period 1961 through 1990.

Mountain precipitation during May was 79 percent of average and 74 percent of last year. Valley precipitation during May was 73 percent of average and 51 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 103 percent of average and 120 percent of last year.



Lower Willow Creek storage was 114 percent of average and 100 percent of last year; and Nevada Creek storage was 114 percent of average and 105 percent of last year.

Surface Water Supply Index (SWSI) was +0.6 in the Clark Fork River above Rock Creek; +0.6 in the Blackfoot River; and +0.6 in the Clark Fork River above Missoula.

UPPER CLARK FORK RIVER BASIN
Streamflow Forecasts - June 1, 1999

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ====== Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
WARM SPRINGS CK at Anaconda (D)	JUN-JUL	28	31	33	125	34	37	26
	JUN-SEP	38	41	43	123	45	48	35
LITTLE BLACKFOOT nr Garrison	JUN-JUL	25	32	36	106	40	47	34
	JUN-SEP	26	36	43	105	50	60	41
FLINT CREEK nr Southern Cross	JUN-JUL	7.57	8.12	8.50	106	8.88	9.43	8.00
	JUN-SEP	8.9	10.1	11.0	104	11.9	13.1	10.6
FLINT CREEK blw Boulder Ck	JUN-JUL	32	35	38	110	40	43	34
	JUN-SEP	49	53	55	110	57	61	50
LOWER WILLOW CK Reservoir Inflow	JUN-JUL	3.22	3.98	4.50	98	5.02	5.78	4.60
	JUN-SEP	4.22	4.98	5.50	100	6.02	6.78	5.50
MF ROCK CREEK nr Philipsburg	JUN-JUL	38	43	46	110	49	54	42
	JUN-SEP	44	49	53	108	57	62	49
ROCK CREEK nr Clinton	JUN-JUL	151	174	190	115	206	229	165
	JUN-SEP	185	210	227	112	244	269	202
NEVADA CREEK nr Finn	JUN-JUL	5.78	7.10	8.00	107	8.90	10.22	7.50
	JUN-SEP	7.18	8.68	9.70	105	10.72	12.22	9.20
CLEARWATER nr Clearwater	JUN-JUL	46	55	62	95	69	78	65
	JUN-SEP	55	64	71	96	78	87	74
BLACKFOOT RIVER nr Bonner	JUN-JUL	409	448	475	115	502	541	414
	JUN-SEP	498	538	565	112	592	632	505
CLARK FORK abv Milltown	JUN-JUL	330	369	395	117	421	460	339
	JUN-SEP	438	481	510	115	539	582	442
CLARK FORK abv Missoula	JUN-JUL	701	802	870	116	938	1039	753
	JUN-SEP	883	997	1075	114	1153	1267	947

UPPER CLARK FORK RIVER BASIN
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
GEORGETOWN LAKE		NO REPORT		
LOWER WILLOW CREEK	4.9	5.0	5.0	4.4
NEVADA CREEK	12.6	13.0	12.4	11.4

UPPER CLARK FORK RIVER BASIN
Watershed Snowpack Analysis - June 1, 1999

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
CLARK FORK ab FLINT CREEK	6	235	117
FLINT CREEK	4	680	73
ROCK CREEK	2	224	130
CLARK FORK ab BLACKFOOT	10	256	116
BLACKFOOT	8	507	149
UPPER CLARK FORK BASIN	17	305	126

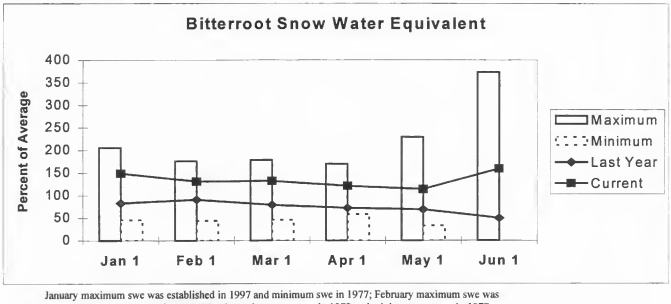
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

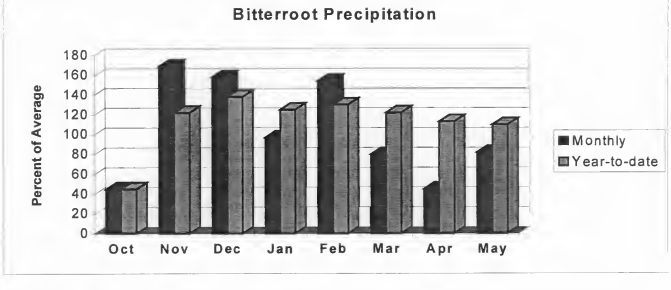
Bitterroot River Basin

Snowpack conditions in the Bitterroot River Basin were extremely above average and thirteenth highest of record. Snow water content was 159 percent of average and 319 percent of last year.



January maximum swe was established in 1997 and minimum swe in 1977; February maximum swe was in 1972 and minimum was in 1977; March maximum swe was in 1972 and minimum swe was in 1977; April maximum swe was in 1972 and minimum swe was in 1977; May maximum swe was in 1972 and minimum swe was in 1987; and June maximum swe was 1972 and 1974 and minimum swe was in 1987 and 1992. Average is for the period 1961 through 1990.

Mountain precipitation during May was 84 percent of average and 65 percent of last year. Valley precipitation during May was 54 percent of average and 40 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 110 percent of average and 119 percent of last year.



Painted Rocks Lake storage was 108 percent of average and 101 percent of last year and Como storage was 92 percent of average and 68 percent of last year.

Surface Water Supply Index (SWSI) was +0.9 in the Bitterroot River.

BITTERROOT RIVER BASIN
Streamflow Forecasts - June 1, 1999

Forecast Point	Forecast Period	<<= Drier = Future Conditions = Wetter =>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
WF BITTERROOT nr Conner (2)	JUN-JUL	69	82	90	120	98	111	75
	JUN-SEP	85	97	105	118	113	125	89
BITTERROOT nr Darby	JUN-JUL	270	291	305	116	319	340	262
	JUN-SEP	328	350	365	117	380	402	311
COMO Reservoir Inflow	JUN-JUL	41	46	50	116	54	59	43
	JUN-SEP	45	50	54	115	58	63	47
SKALKAHO CK nr Hamilton	JUN-JUL	27	31	33	114	36	39	29
	JUN-SEP	34	38	41	114	44	48	36
BITTERROOT at Missoula	JUN-JUL	736	807	855	116	903	974	735
	JUN-SEP	866	946	1000	117	1054	1134	855

BITTERROOT RIVER BASIN
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
PAINTED ROCKS LAKE	31.7	32.8	32.5	30.4
COMO	34.9	26.7	39.2	28.9

BITTERROOT RIVER BASIN
Watershed Snowpack Analysis - June 1, 1999

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
WEST FORK BITTERROOT	2	152	117
EAST SIDE BITTERROOT	3	170	119
WEST SIDE BITTERROOT	3	855	211
BITTERROOT RIVER BASIN	7	319	159

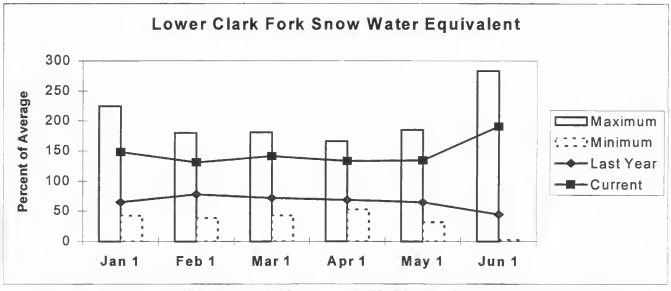
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

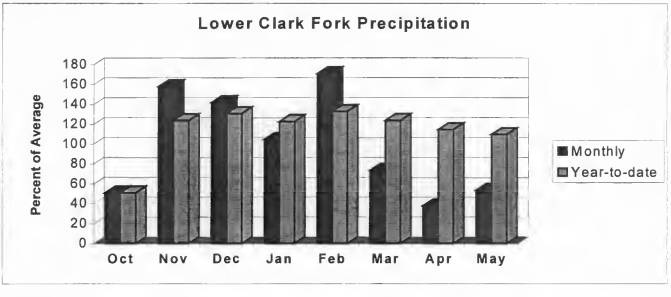
Lower Clark Fork River Basin

Snowpack conditions in the Lower Clark Fork River Basin were extremely above average and eighth highest of record for the period 1970 to 1998. Snow water content was 191 percent of average and 422 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1977; February maximum swe was in 1972 and minimum swe was in 1977; March maximum swe was in 1972 and minimum was in 1977; April maximum swe was in 1972 and minimum swe was in 1981; May maximum swe was in 1972 and minimum swe was in 1977; and June maximum swe was in 1974 and minimum swe was in 1977. Average is for the period 1961 through 1990.

Mountain precipitation during May was 65 percent of average and 39 percent of last year. Valley precipitation during May was 26 percent of average and 11 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 110 percent of average and 124 percent of last year.



Noxon Rapids storage was 118 percent of average and 100 percent of last year.

Surface Water Supply Index (SWSI) was +0.7 in the Clark Fork River below Bitterroot River and +0.4 in the Clark Fork River below Flathead River.

LOWER CLARK FORK RIVER BASIN
Streamflow Forecasts - June 1, 1999

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ====== Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
CLARK FORK abv Missoula	JUN-JUL	701	802	870	116	938	1039	753
	JUN-SEP	883	997	1075	114	1153	1267	947
CLARK FORK blw Missoula	JUN-JUL	1470	1622	1725	116	1828	1980	1490
	JUN-SEP	1793	1964	2080	116	2196	2367	1801
CLARK FORK at St. Regis (1)	JUN-JUL	1631	2029	2210	116	2391	2789	1903
	JUN-SEP	2033	2481	2685	116	2889	3337	2313
CLARK FORK nr Plains (1,2)	JUN-JUL	4941	5848	6260	115	6672	7579	5457
	JUN-SEP	6069	7079	7537	116	7995	9005	6486
THOMPSON nr Thompson Falls	JUN-JUL	66	77	85	96	93	104	89
	JUN-SEP	89	102	110	95	118	131	116
PROSPECT CREEK at Thompson Falls	JUN-JUL	37	42	45	102	48	53	44
	JUN-SEP	45	51	54	102	58	63	53
CLARK FK at Whitehorse Rpds (1,2)	JUN-JUL	5352	6382	6850	115	7318	8348	5984
	JUN-SEP	6568	7718	8240	115	8762	9912	7166

LOWER CLARK FORK RIVER BASIN
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
NOXON RAPIDS	335.0	330.7	331.5	279.6

LOWER CLARK FORK RIVER BASIN
Watershed Snowpack Analysis - June 1, 1999

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
LOWER CLARK FORK BASIN	6	422	191

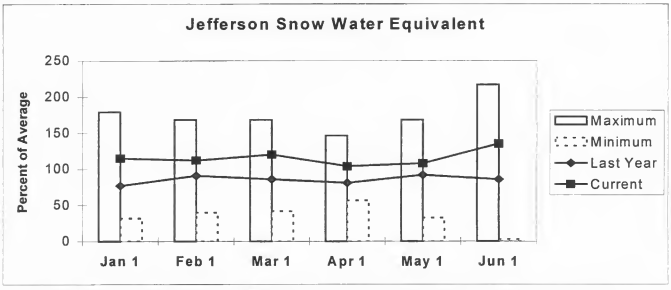
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

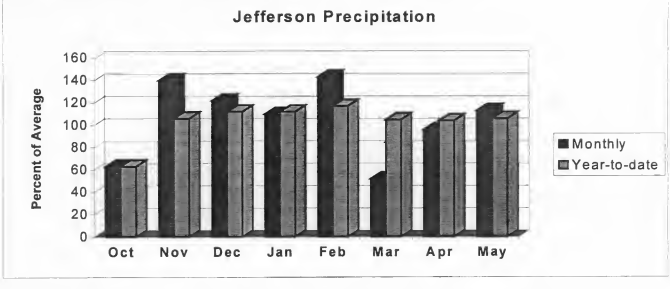
Jefferson River Basin

Snowpack conditions in the Jefferson River Basin were well above average and fourth highest of record for the period 1981 to 1998. Snow water content was 135 percent of average and 165 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1977; February maximum swe was in 1997 and minimum was in 1977; March maximum swe was in 1972 and minimum was in 1977; April maximum swe was in 1972 and minimum was in 1977; May maximum swe was in 1975 and minimum swe was in 1977; and June maximum swe was in 1982 and minimum in 1987. Average is for the period 1961 through 1990.

Mountain precipitation during May was 105 percent of average and 98 percent of last year. Valley precipitation during May was 146 percent of average and 121 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 106 percent of average and 109 percent of last year.



Lima storage was 125 percent of average and 106 percent of last year; Clark Canyon storage was 100 percent of average and 93 percent of last year; and Ruby River storage was 104 percent of average and 101 percent of last year.

Surface Water Supply Index (SWSI) was +0.6 in the Beaverhead River; -0.8 in the Ruby River; +0.9 in the Big Hole River; -0.1 in the Boulder River; and +0.6 in the Jefferson River as a whole.

JEFFERSON RIVER BASIN
Streamflow Forecasts - June 1, 1999

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ====== Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
LIMA Reservoir Inflow (2)	JUN-JUL	40	44	47	121	50	54	39
	JUN-SEP	48	53	56	119	59	64	47
BEAVERHEAD RIVER near Grant (2)	JUN-JUL	45	55	62	119	69	79	52
	JUN-SEP	69	80	88	117	96	108	75
BEAVERHEAD RIVER at Barretts (2)	JUN-JUL	68	78	85	116	92	102	73
	JUN-SEP	96	110	120	115	130	144	104
RUBY RIVER Reservoir Inflow	JUN-JUL	25	32	36	80	40	47	45
	JUN-SEP	38	44	49	80	54	60	61
BIG HOLE RIVER near Melrose	JUN-JUL	359	392	415	119	438	471	349
	JUN-SEP	422	457	480	118	503	538	406
BOULDER RIVER near Boulder	JUN-JUL	23	33	40	100	47	58	40
	JUN-SEP	20	36	46	100	56	72	46
WILLOW CREEK Reservoir Inflow	JUN-JUL	8.5	10.0	11.0	102	12.0	13.5	10.8
	JUN-SEP	10.8	12.3	13.4	103	14.5	16.0	13.0
JEFFERSON RIVER near Three Forks (2)	JUN-JUL	358	437	490	107	543	622	459
	JUN-SEP	387	496	570	103	644	753	551

JEFFERSON RIVER BASIN
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
LIMA	84.0	80.4	75.5	64.2
CLARK CANYON	255.6	165.4	178.7	165.3
RUBY RIVER	38.8	39.3	38.9	37.9

JEFFERSON RIVER BASIN
Watershed Snowpack Analysis - June 1, 1999

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
BEAVERHEAD	8	143	164
RUBY	5	169	129
BIGHOLE	8	146	117
BOULDER	3	229	94
JEFFERSON RIVER BASIN	19	165	135

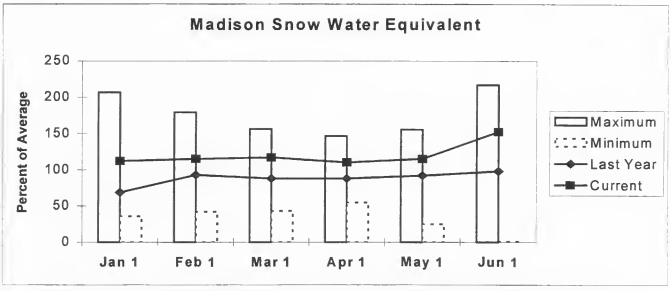
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

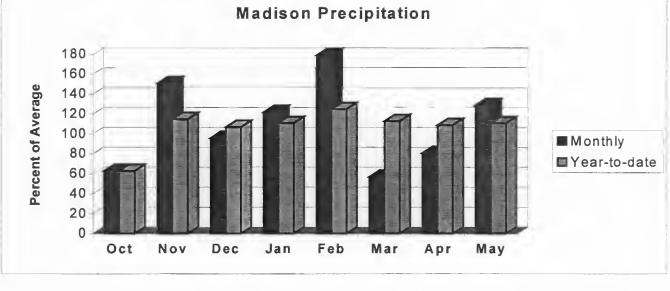
Madison River Basin

Snowpack conditions in the Madison River Basin were extremely above average and fourth highest of record. Snow water content was 152 percent of average and 167 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1977; February maximum swe was in 1997 and minimum was in 1977; March maximum swe was in 1997 and minimum was in 1977; April maximum swe was in 1997 and minimum was in 1977; May maximum swe was in 1997 and minimum swe was in 1977; and June maximum swe was in 1995 and minimum in 1987. Average is for the period 1961 through 1990.

Mountain and valley precipitation during May was 129 percent of average and 119 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 111 percent of average and 118 percent of last year.



Ennis Lake storage was 97 percent of average and 95 percent of last year and Hebgen Lake storage was 96 percent of average and 85 percent of last year.

Surface Water Supply Index (SWSI) was +0.3 for the Madison River.

MADISON RIVER BASIN
Streamflow Forecasts - June 1, 1999

Forecast Point	Forecast Period	<<= Drier = Future Conditions = Wetter =>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
HEBGEN LAKE Inflow	JUN-JUL	213	229	240	120	251	267	200
	JUN-SEP	330	348	360	117	372	390	307
ENNIS LAKE Inflow (2)	JUN-JUL	347	379	400	108	421	453	369
	JUN-SEP	519	552	575	107	598	631	538

MADISON RIVER BASIN
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
ENNIS LAKE	41.0	34.6	36.6	35.8
HEBGEN LAKE	377.5	298.8	351.6	309.8

MADISON RIVER BASIN
Watershed Snowpack Analysis - June 1, 1999

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
MADISON abv HEBGEN LAKE	4	207	219
MADISON blw HEBGEN LAKE	7	148	126
MADISON RIVER BASIN	11	167	152

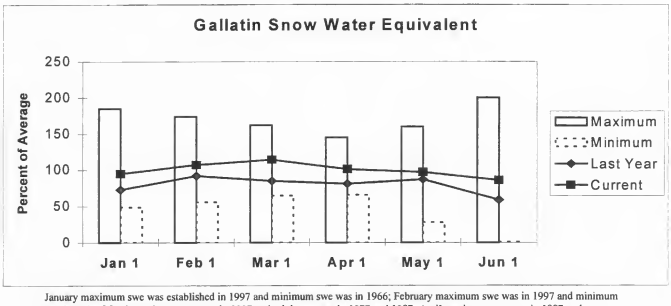
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

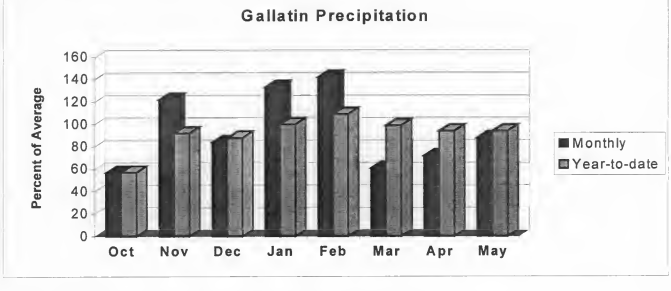
Gallatin River Basin

Snowpack conditions in the Gallatin River Basin were below average. Snow water content was 86 percent of average and 145 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1966; February maximum swe was in 1997 and minimum was in 1981; March maximum swe was in 1997 and minimum was in 1977 and 1987; April maximum swe was in 1997 and minimum was in 1987; May maximum swe was in 1970 and minimum swe was in 1987; and June maximum swe was in 1975 and minimum in 1987. Average is for the period 1961 through 1990.

Mountain precipitation during May was 88 percent of average and 138 percent of last year. Valley precipitation during May was 86 percent of average and 159 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 94 percent of average and 115 percent of last year.



Middle Creek storage was 139 percent of average and 95 percent of last year.

Surface Water Supply Index (SWSI) was -0.7 for the Gallatin River.

GALLATIN RIVER BASIN
Streamflow Forecasts - June 1, 1999

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
GALLATIN RIVER near Gateway	JUN-JUL	268	293	310	105	327	352	294
	JUN-SEP	348	373	390	105	407	432	371
HYALITE Reservoir Inflow	JUN-JUL	10.7	12.4	13.5	84	14.6	16.3	16.0
	JUN-SEP	13.4	15.1	16.2	84	17.3	19.0	19.3
HYALITE CREEK nr Bozeman (2)	JUN-JUL	15.8	18.1	19.6	89	21	23	22
	JUN-SEP	21	23	25	89	26	29	28
GALLATIN RIVER at Logan (2)	JUN-JUL	188	225	250	87	275	312	287
	JUN-SEP	242	288	320	87	352	398	370

GALLATIN RIVER BASIN
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MIDDLE CREEK	10.2	9.7	10.2	7.0

GALLATIN RIVER BASIN
Watershed Snowpack Analysis - June 1, 1999

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
UPPER GALLATIN	3	129	113
HYALITE	2	196	77
BRIDGER	2	400	20
GALLATIN RIVER BASIN	7	145	86

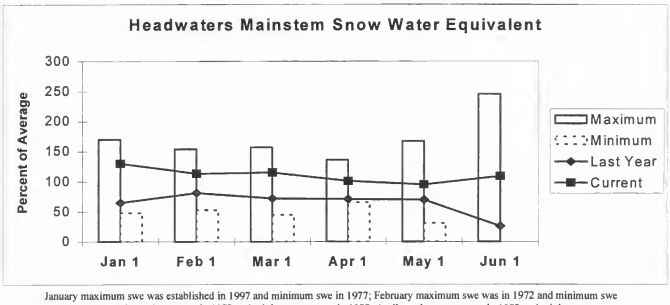
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

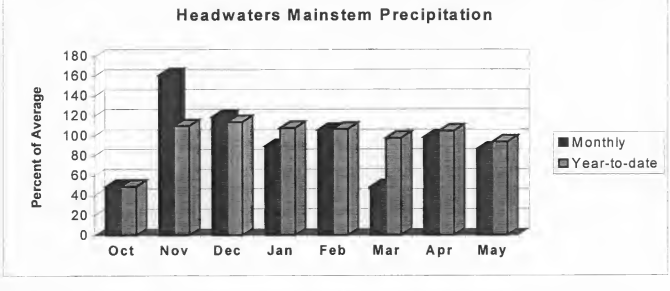
Missouri Mainstem River Basin

Snowpack conditions in the Headwaters Missouri Mainstem River Basin were near average. Snow water content was 109 percent of average and 473 percent of last year.



January maximum swe was established in 1997 and minimum swe in 1977; February maximum swe was in 1972 and minimum swe was in 1977; March maximum swe in 1972 and minimum swe was in 1977; April maximum swe was in 1972 and minimum swe was in 1961; May maximum swe was in 1975 and minimum swe was in 1977; and June maximum swe was in 1982 and minimum swe was in 1992. Average is for the period 1961 through 1990.

Mountain precipitation during May was 91 percent of average and 97 percent of last year. Valley precipitation during May was 95 percent of average and 134 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 94 percent of average and 116 percent of last year.



Canyon Ferry Lake storage was 90 percent of average and 85 percent of last year; Helena Valley storage was 110 percent of average and 88 percent of last year; Lake Helena storage was 110 percent of average and 102 percent of last year; Hauser & Helena storage was 104 percent of average and 101 percent of last year; Holter Lake storage was 104 percent of average and 100 percent of last year; and Fort Peck Lake storage was 101 percent of average and 101 percent of last year.

Surface Water Supply Index (SWSI) was +0.2 in the Missouri River above Canyon Ferry; -0.4 in the Missouri River below Canyon Ferry; -0.2 in the Missouri River above Fort Peck; and 0.0 in the Missouri River below Fort Peck.

MISSOURI MAINSTEM RIVER BASIN
Streamflow Forecasts - June 1, 1999

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ====== Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
MISSOURI RIVER at Toston (2)	JUN-JUL	918	1053	1145	102	1237	1372	1120
	JUN-SEP	1227	1360	1480	101	1600	1739	1461
PRICKLY PEAR CREEK near Clancy	JUN-JUL	6.7	8.7	10.0	83	11.3	13.3	12.0
	JUN-SEP	6.4	10.3	13.0	82	15.7	19.6	15.8
GIBSON Reservoir Inflow	JUN-JUL	295	337	365	130	393	435	281
	JUN-SEP	350	392	420	128	448	490	329
MISSOURI RIVER at Fort Benton (2)	JUN-JUL	986	1334	1570	94	1806	2154	1671
	JUN-SEP	1832	1845	2140	95	2435	2647	2262
MARIAS RIVER near Shelby (2)	JUN-JUL	193	257	300	127	343	407	236
	JUN-SEP	243	304	345	125	386	447	277
MISSOURI RIVER at Virgelle (2)	JUN-JUL	1010	1573	1955	101	2337	2900	1942
	JUN-SEP	2102	2181	2590	101	2999	3308	2564
MISSOURI RIVER near Landusky (2)	JUN-JUL	1155	1750	2155	102	2560	3155	2109
	JUN-SEP	2317	2451	2840	102	3229	3658	2792
MISSOURI RIVER below Fort Peck (2)	JUN-JUL	986	1638	2080	100	2522	3174	2072
	JUN-SEP	1992	2265	2674	107	3083	3312	2490
LAKE SAKAKAWEA Inflow (2)	JUN-JUL	6694	7451	7965	144	8479	9236	5540
	JUN-SEP	8177	9129	9800	140	10471	11881	6989

MISSOURI MAINSTEM RIVER BASIN
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
CANYON FERRY LAKE	2043.0	1500.0	1773.0	1659.0
HELENA VALLEY	9.2	8.0	9.1	7.3
LAKE HELENA	10.4	11.1	10.9	10.1
HAUSER & HELENA	61.9	63.6	63.1	60.9
HOLTER LAKE	81.9	80.8	81.2	78.0
FORT PECK LAKE (MAF)	18.9	15.6	15.4	15.5

MISSOURI MAINSTEM RIVER BASIN
Watershed Snowpack Analysis - June 1, 1999

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
HEADWATERS MAINSTEM	6	472	109
SMITH-JUDITH-MUSSELSHELL	7	475	106
SUN-TETON-MARIAS	6	0	176
MAINSTEM ab FT PECK RES	18	894	137
MILK RIVER BASIN	4	0	0
MISSOURI MAINSTEM BASIN	21	796	133

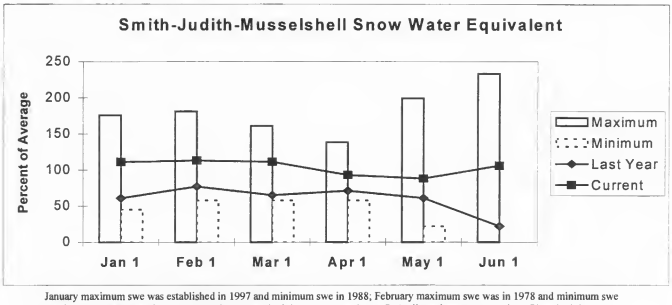
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

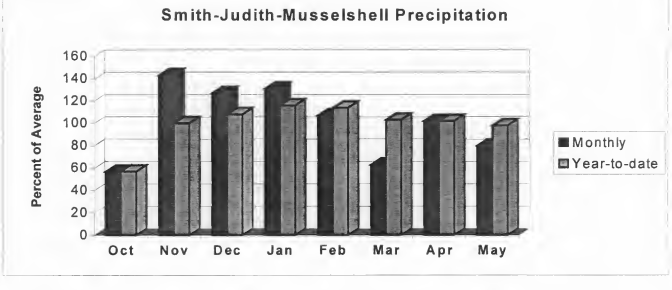
Smith-Judith-Musselshell River Basins

Snowpack conditions in the Smith-Judith-Musselshell River Basins were near average. Snow water content was 106 percent of average and 475 percent of last year.



January maximum swe was established in 1997 and minimum swe in 1988; February maximum swe was in 1978 and minimum swe was in 1987; March maximum swe was in 1978 and minimum swe was in 1987; April maximum swe was in 1970 and minimum swe was in 1992; and May maximum swe was in 1970 and minimum swe was in 1987; and June maximum swe was in 1982 and minimum swe was in 1992. Average is for the period 1961 through 1990.

Mountain and valley precipitation during May in the Smith-Belts was 80 percent of average and 81 percent of last year; in the Judith was 76 percent of average and 102 percent of last year; and in the Musselshell was 98 percent of average and 123 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 98 percent of average and 121 percent of last year.



Smith River storage was 104 percent of average and 95 percent of last year; Bair storage was 84 percent of average and 88 percent of last year; Martinsdale storage was 121 percent of average and 95 percent of last year; and Deadman's Basin was 112 percent of average and 100 percent of last year.

Surface Water Supply Index (SWSI) was +0.7 in the Smith River and +0.7 in the Musselshell River.

SMITH-JUDITH-MUSSELSHELL RIVER BASINS
Streamflow Forecasts - June 1, 1999

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ====== Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SHEEP CREEK nr White Sulphur Springs	JUN-JUL	7.6	9.0	10.0	100	11.0	12.4	10.0
	JUN-SEP	10.5	12.0	13.0	101	14.0	15.5	12.9
SMITH RIVER near Fort Logan (D)	JUN-JUL	23	31	36	100	41	49	36
	JUN-SEP	23	37	47	100	57	71	47
NF MUSSELSHELL near Delpine	JUN-JUL	1.75	2.14	2.40	104	2.66	3.05	2.30
	JUN-SEP	2.61	3.02	3.30	107	3.58	3.99	3.10
SF MUSSELSHELL abv Martinsdale	JUN-JUL	15.3	23	28	108	33	41	26
	JUN-SEP	19.2	27	32	110	37	45	29

SMITH-JUDITH-MUSSELSHELL RIVER BASINS
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
SMITH RIVER	10.6	10.9	11.5	10.5
NEWLAN CREEK		NO REPORT		
BAIR	7.0	5.2	5.9	6.2
MARTINSDALE	23.1	20.8	21.8	17.2
DEADMAN'S BASIN	72.2	61.6	61.8	55.1

SMITH-JUDITH-MUSSELSHELL RIVER BASINS
Watershed Snowpack Analysis - June 1, 1999

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
SMITH	4	466	118
JUDITH	4	316	107
MUSSELSHELL	2	0	0
SMITH-JUDITH-MUSSELSHELL	7	475	106

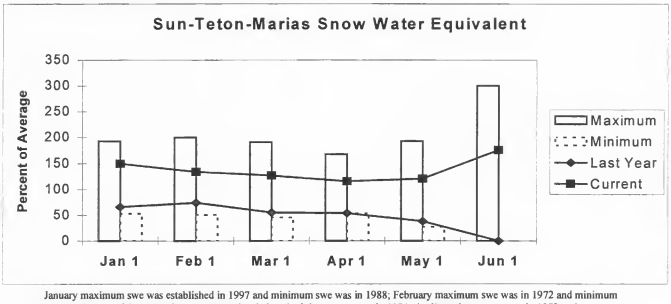
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

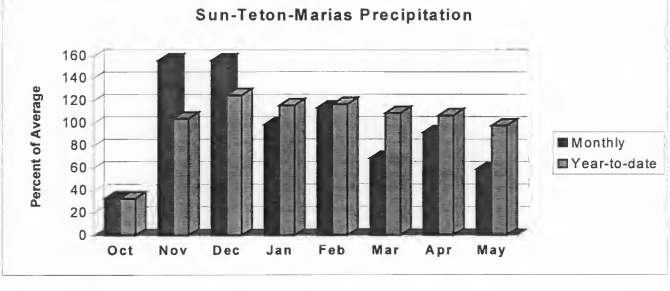
Sun-Teton-Marias River Basins

Snowpack conditions in the Sun-Teton-Marias River Basins were extremely above average and eighth highest of record for the period 1975 to 1998. Snow water content was 176 percent of average and the basins were melted out this time last year. Snow water content in the Sun River Basin was 176 percent of average and last year was melted out; in the Teton River Basin was 170 percent of average and last year had melted out; and in the Marias River Basin was 176 percent of average and last year had melted out.



January maximum swe was established in 1997 and minimum swe was in 1988; February maximum swe was in 1972 and minimum swe was in 1977; March maximum swe was in 1972 and minimum swe was in 1984; April maximum swe was in 1972 and minimum swe was in 1984; May maximum swe was in 1972 and minimum swe was in 1977; and June maximum was in 1982 and minimum swe was in 1992. Average is for the period 1961 through 1990.

Mountain and valley precipitation during May in the Sun was 65 percent of average and 56 percent of last year; in the Teton was 60 percent of average and 72 percent of last year; and in the Marias was 56 percent of average and 60 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 98 percent of average and 131 percent of last year.



Gibson storage was 91 percent of average and 86 percent of last year; Pishkun storage was 101 percent of average and 99 percent of last year; Willow Creek storage was 81 percent of average and 96 percent of last year ; Lower Two Medicine Lake storage was 86 percent of average and 77 percent of last year; Four Horns Lake storage was 64 percent of average and 81 percent of last year; Swift storage was 49 percent of average and 43 percent of last year; Lake Frances storage was 81 percent of average and 111 percent of last year; and Lake Elwell (Tiber) storage was 110 percent of average and 89 percent of last year.

Surface Water Supply Index (SWSI) was +0.9 in the Sun River; +1.2 in the Teton River; +1.3 in the Birch/Dupuyer Creeks; and +1.2 in the Marias River.

SUN-TETON-MARIAS RIVER BASINS
Streamflow Forecasts - June 1, 1999

Forecast Point	Forecast Period	<<= Drier = Future Conditions = Wetter =>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
GIBSON Reservoir Inflow	JUN-JUL	295	337	365	130	393	435	281
	JUN-SEP	350	392	420	128	448	490	329
TWO MEDICINE RIVER nr Browning (2)	JUN-JUL	103	119	130	124	141	157	105
	JUN-SEP	118	134	145	124	156	172	117
BADGER CREEK near Browning (2)	JUN-JUL	59	65	70	123	75	81	57
	JUN-SEP	79	86	90	122	95	101	74
SWIFT Reservoir Inflow	JUN-JUL	40	44	47	124	50	54	38
	JUN-SEP	54	58	61	122	64	68	50
DUPUYER CREEK near Valier	JUN-JUL	1.20	6.08	9.40	124	12.72	17.60	7.60
	JUN-SEP	2.49	7.85	11.50	121	15.15	20.51	9.50
CUT BANK CREEK at Cut Bank	JUN-JUL	53	57	60	128	63	67	47
	JUN-SEP	62	67	70	125	73	78	56
MARIAS RIVER near Shelby (2)	JUN-JUL	193	257	300	127	343	407	236
	JUN-SEP	243	304	345	125	386	447	277

SUN-TETON-MARIAS RIVER BASINS
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
GIBSON	99.1	81.9	95.4	90.1
PISHKUN	32.0	30.4	30.6	30.1
WILLOW CREEK	32.2	23.0	24.0	28.5
LOWER TWO MEDICINE LAKE	11.9	9.6	12.5	11.1
FOUR HORNS LAKE	19.2	8.3	10.2	13.0
SWIFT	30.0	12.1	28.2	24.8
LAKE FRANCES	112.0	70.7	63.7	87.4
LAKE ELWELL (TIBER)	1347.0	757.3	851.1	690.8

SUN-TETON-MARIAS RIVER BASINS
Watershed Snowpack Analysis - June 1, 1999

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
SUN	2	0	176
TETON	3	0	170
MARIAS	3	0	176
SUN-TETON-MARIAS	6	0	176

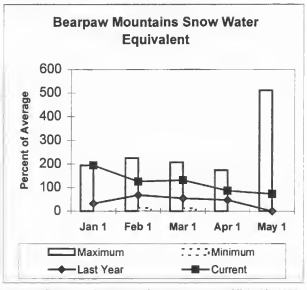
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

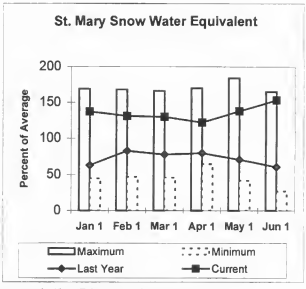
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

St. Mary and Milk River Basins

Snowpack conditions in the St. Mary were well above average. Snow water content was 153 percent of average and 250 percent of last year and tied for second highest of record for the period 1977 to 1998. The Milk River Basin (Bearpaw Mountains) has melted out.

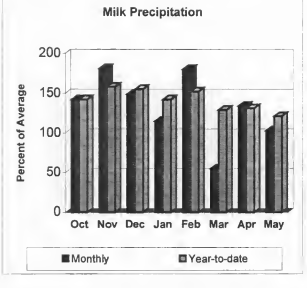


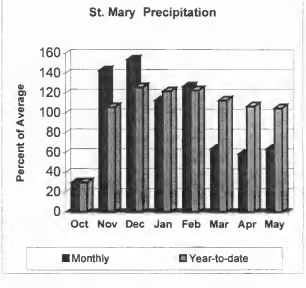


Bearpaw - January maximum swe was established in 1978 and minimum swe was in 1981; February maximum swe was 1978 and minimum was in 1973; March maximum swe was 1978 and minimum swe was 1981; April maximum swe was in 1975 and minimum swe was in 1983; May maximum swe was 1975 and the minimum has occurred in several years. Average is for the period 1961 through 1990.

St. Mary - January maximum swe was established in 1997 and minimum swe was in 1988; February maximum swe was in 1972 and minimum swe was in 1977; March maximum swe was in 1972 and minimum swe was in 1977; April maximum swe was in 1972 and minimum swe was in 1992; May maximum swe was in 19972 and minimum swe was in 1977; and June maximum swe was in 1991 and minimum swe was 1992. Average is for the period 1961 through 1990.

Mountain and valley precipitation in the St. Mary River Basin during May was 64 percent of average and 82 percent of last year; and in the Milk River Basin during May was 103 percent of average and 174 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 113 percent of average and 143 percent of last year.





Lake Sherburne storage was 53 percent of average and 39 percent of last year; Fresno storage was 79 percent of average and 116 percent of last year; Beaver Creek storage was 121 percent of average and 146 percent of last year; and Nelson storage was 118 percent of average and 173 percent of last year.

Surface Water Supply Index (SWSI) was -0.4 for the Milk River.

ST. MARY and MILK RIVER BASINS
Streamflow Forecasts - June 1, 1999

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ====== Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
LAKE SHERBURNE Inflow	JUN-JUL	58	64	68	106	72	78	64
	JUN-SEP	68	79	86	106	93	104	81
ST. MARY RIVER near Babb	JUN-JUL	258	277	290	111	303	322	261
	JUN-SEP	328	347	360	109	373	392	329
ST. MARY RIVER at US/CAN Border (2)	JUN-JUL	288	310	325	109	340	362	298
	JUN-SEP	373	395	410	109	425	447	376
MILK RIVER at Western Crossing	JUN-JUL	7.4	10.4	12.5	104	14.6	17.6	12.0
	JUN-SEP	3.6	10.8	15.7	105	21	28	15.0
MILK RIVER at Eastern Crossing (2)	JUN-JUL	1.6	8.5	13.2	83	17.9	25	16.0
	JUN-SEP	15.4	9.5	19.5	81	30	27	24
BEAVER CREEK Reservoir Inflow	JUN-JUL	1.43	2.81	3.75	94	4.69	6.07	4.00

ST. MARY and MILK RIVER BASINS
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
LAKE SHERBURNE	64.3	17.1	43.6	32.0
FRESNO	127.0	70.2	60.7	89.1
BEAVER CREEK	3.5	3.5	2.4	2.9
NELSON	66.8	50.2	29.0	42.6

ST. MARY and MILK RIVER BASINS
Watershed Snowpack Analysis - June 1, 1999

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
ST. MARY	2	250	153
BEARPAW MOUNTAINS	4	0	0
CYPRESS HILLS, CANADA	0	0	0
MILK RIVER BASIN	4	0	0
ST. MARY & MILK BASINS	6	250	151

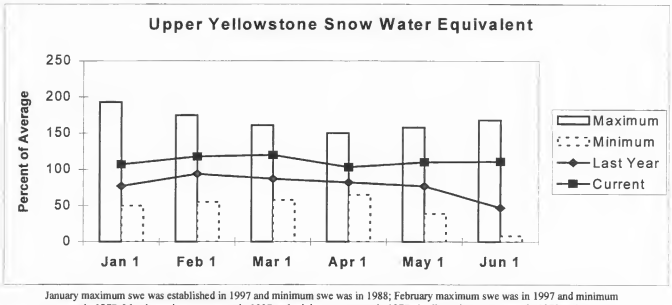
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

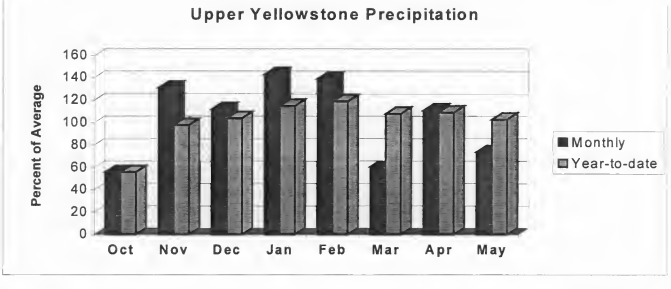
Upper Yellowstone River Basin

Snowpack conditions in the Upper Yellowstone River Basin were slightly above average. Snow water content was 111 percent of average and 233 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1988; February maximum swe was in 1997 and minimum swe was in 1977; March maximum swe was in 1997 and minimum swe was in 1977; April maximum swe was in 1971 and minimum swe was in 1981; May maximum swe was in 1997 and minimum swe was in 1987; and June maximum swe was 1982 and minimum swe was in 1987 and 1994. Average is for the period 1961 through 1990.

Mountain precipitation during May was 79 percent of average and 148 percent of last year. Valley precipitation during May was 51 percent of average and 139 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 103 percent of average and 128 percent of last year.



Mystic Lake storage was 102 percent of average and 140 percent of last year and Cooney storage was 131 percent of average and 117 percent of last year.

Surface Water Supply Index (SWSI) was +1.8 in the Yellowstone River above Livingston; -0.3 in the Shields River; +0.4 in the Boulder River; -0.1 in the Stillwater River; +0.7 in the Rock/Red lodge Creeks; +1.4 in the Clarks Fork River; and +1.3 in the Yellowstone River above Bighorn River.

UPPER YELLOWSTONE RIVER BASIN
Streamflow Forecasts - June 1, 1999

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ====== Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
YELLOWSTONE at Lake Outlet	JUN-JUL	580	598	610	129	622	640	472
	JUN-SEP	839	858	870	126	882	901	691
YELLOWSTONE RIVER at Corwin Spgs.	JUN-JUL	1311	1391	1445	125	1499	1579	1156
	JUN-SEP	1665	1763	1830	123	1897	1995	1484
YELLOWSTONE RIVER near Livingston	JUN-JUL	1525	1620	1685	126	1750	1845	1335
	JUN-SEP	1941	2059	2140	124	2221	2339	1721
SHIELDS RIVER nr Livingston	JUN-JUL	22	51	70	91	89	118	77
	JUN-SEP	28	62	85	90	108	142	95
BOULDER RIVER at Big Timber	JUN-JUL	221	241	255	101	269	289	253
	JUN-SEP	251	271	285	101	299	319	282
MYSTIC LAKE Reservoir Inflow (2)	JUN-JUL	48	51	53	104	55	58	51
	JUN-SEP	66	69	71	103	73	76	69
STILLWATER RIVER nr Absarokee (2)	JUN-JUL	329	356	375	99	394	421	380
	JUN-SEP	424	451	470	99	489	516	475
CLARKS FORK RIVER nr Belfry	JUN-JUL	415	448	470	119	492	525	395
	JUN-SEP	485	518	540	119	562	595	453
COONEY Reservoir Inflow (2)	JUN-JUL	15.5	21	25	104	29	35	24
	JUN-SEP	21	29	35	100	41	49	35
YELLOWSTONE RIVER at Billings (2)	JUN-JUL	2731	3004	3190	126	3376	3649	2525
	JUN-SEP	3633	3784	4020	127	4256	4391	3159

UPPER YELLOWSTONE RIVER BASIN
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MYSTIC LAKE	21.0	5.6	4.0	5.5
COONEY	27.4	26.1	22.3	20.0

UPPER YELLOWSTONE RIVER BASIN
Watershed Snowpack Analysis - June 1, 1999

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
YELLOWSTONE ab LIVINGSTON	11	204	123
SHIELDS	4	811	53
BOULDER-STILLWATER	3	312	109
CLARK'S FORK-ROCK CREEK	8	204	113
UPPER YELLOWSTONE BASIN	22	233	111

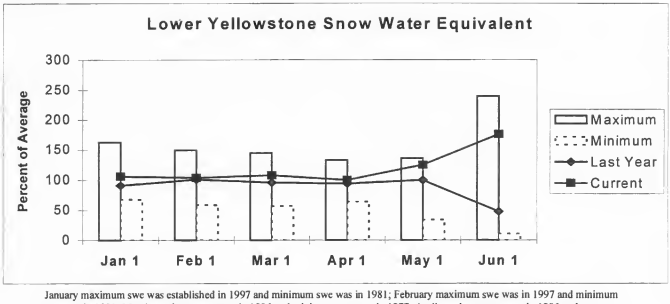
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

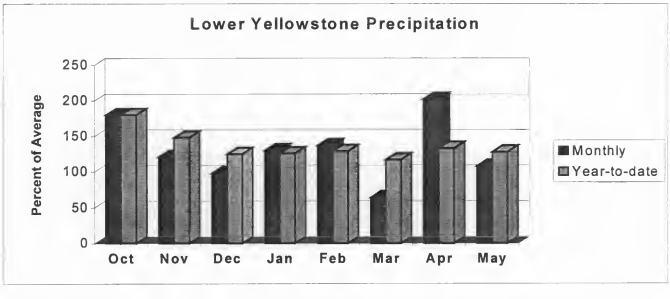
Lower Yellowstone River Basin

Snowpack conditions in the Lower Yellowstone River Basin, in Wyoming, were extremely above average. Snow water content was 176 percent of average and 369 percent of last year and tied for the second highest of record for the period 1984 to 1998.



January maximum swe was established in 1997 and minimum swe was in 1981; February maximum swe was in 1997 and minimum swe was in 1981; March maximum swe was in 1986 and minimum swe was in 1977; April maximum swe was in 1986 and minimum swe was in 1981; May maximum swe was in 1997 and minimum swe was in 1981; and June maximum swe was in 1995 and minimum swe was in 1994. Average is for the period 1961 through 1990.

Mountain and valley precipitation during May was 108 percent of average and 207 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 128 percent of average and 137 percent of last year.



Bighorn Lake storage was 107 percent of average and 106 percent of last year and Tongue River storage was 135 percent of average and 243 percent of last year.

Surface Water Supply Index (SWSI) was +2.4 in the Bighorn River below Bighorn Lake; -0.5 in the Little Bighorn River; +1.8 in the Yellowstone River below Bighorn River; +0.4 in the Tongue River; and +0.7 in the Powder River.

LOWER YELLOWSTONE RIVER BASIN
Streamflow Forecasts - June 1, 1999

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ====== Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
YELLOWSTONE RIVER at Billings (2)	JUN-JUL	2731	3004	3190	126	3376	3649	2525
	JUN-SEP	3633	3784	4020	127	4256	4391	3159
BIGHORN RIVER nr St. Xavier (2)	JUN-JUL	1276	1433	1540	135	1647	1804	1141
	JUN-SEP	1403	1604	1740	133	1876	2077	1306
LITTLE BIGHORN RIVER nr Hardin	JUN-JUL	50	59	65	87	71	80	75
	JUN-SEP	59	70	78	85	86	97	92
TONGUE RIVER Reservoir Inflow (2)	JUN-JUL	104	122	135	100	148	166	135
	JUN-SEP	123	145	160	99	175	197	161
YELLOWSTONE RIVER at Miles City (2)	JUN-JUL	4078	4722	5160	138	5598	6242	3753
	JUN-SEP	5028	5845	6400	138	6955	7773	4631
POWDER RIVER at Moorehead	JUN-JUL	80	119	145	125	171	210	116
	JUN-SEP	103	143	170	123	197	237	138
POWDER RIVER near Locate	JUN-JUL	99	135	160	116	185	221	138
	JUN-SEP	108	157	190	117	223	272	162
YELLOWSTONE RIVER nr Sidney (2)	JUN-JUL	4131	5065	5700	145	6335	7269	3928
	JUN-SEP	5858	6153	6930	146	7707	8097	4763

LOWER YELLOWSTONE RIVER BASIN
Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
BIGHORN LAKE	1356.0	911.5	859.7	855.6
TONGUE RIVER	68.0	65.0	26.8	48.2

LOWER YELLOWSTONE RIVER BASIN
Watershed Snowpack Analysis - June 1, 1999

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
WIND RIVER (Wyoming)	11	332	191
SHOSHONE RIVER (Wyoming)	6	283	153
BIGHORN RIVER (Wyoming)	16	322	150
LITTLE BIGHORN (Wyoming)	2	204	117
TONGUE RIVER (Wyoming)	5	855	142
POWDER RIVER (Wyoming)	6	3214	151
LOWER YELLOWSTONE BASIN	28	341	162

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

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Montana
Basin Outlook Report

Natural Resources Conservation Service
Bozeman, MT